

APPLICANT(S): OWEN, John Robert et al.  
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## REMARKS

Applicants respectfully request reconsideration of the above-identified application in view of the following remarks.

### Status of Claims

Claims 2-4 have been previously canceled. Claims 1, 5, and 6 are currently pending in the application.

## CLAIM REJECTIONS

### 35 U.S.C. § 103 Rejections

In the final Office Action, the Examiner rejected Claims 1, 5, and 6 under 35 U.S.C. § 103(a), as being unpatentable over Wachsman et al. (U.S. Publ. No. 2003/066519) in view of Sullivan et al. (Analytical Chemistry, October 1999, 71(19), pp. 4369-4375) and Kudla et al. (Kudla, R.J., Subramanian, M.S. Chattha, and T.E. Hoost, "Effect of Tungsten Oxide Addition on the Catalytic Activity of Gamma  $\text{Al}_2\text{O}_3$  for  $\text{NO}_x$  Reduction From Fuel Lean Gas Mixtures." Ind. Eng. Chem. Res. 35 (1996): 4394-397.).

In the final Office Action, the Examiner also rejected Claims 1 and 5 as being unpatentable over Nagai et al. (Japanese Patent No. 6160344) in view of Sullivan et al. and Kudla et al.

In the final Office Action, the Examiner further rejected Claim 6 as being unpatentable over Nagai et al. in view of Sullivan et al. and Kudla et al. and further in view of Wachsman et al.

It is respectfully submitted that the invention as recited in the pending claims is not made obvious by Wachsman et al., Sullivan et al., Kudla et al., and Nagai or by any combination thereof. Consequently, the above rejections should be withdrawn.

According to the Examiner, the Kudla reference teaches electrocatalysts. Applicants respectfully assert that this is incorrect. In fact, the Kudla et al. reference does not teach anything regarding electrocatalysts or electrolytes. Terms such as "electrocatalyst", "electrolyte" etc. are never mentioned in the Kudla et al. reference. The Examiner seems to have taken the view that all catalysts are implicitly electrocatalysts. Although all

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electrocatalysts are catalysts, the reverse is not so, as not all catalysts are electrocatalysts. In fact, electrocatalysts are specific forms of catalysts that function at electrode surfaces or may be the electrode surface themselves. Accordingly, it is respectfully asserted that the Kudla et al. reference does not teach such a catalyst.

On the contrary, the Kudla et al. reference teaches zeolite-like alumina catalysts whose acidity is increased by the presence of tungsten oxide. The proton affinity of the internal surface of the zeolite-like material is taught to be modified with the tungsten oxide dopant, thereby improving the heterogeneous catalytic behaviour. The system is not an electrolyte in any way, and indeed the bulk material (doped or not) is not even a conductor of ions or electrons.

The Kudla et al. reference teaches a very standard style of technology in zeolites and non-zeolitic "zeolite-look-alikes" where basic silicate or alumina inorganic matrices are modified by addition of various metal oxides for thermal catalytic cracking of hydrocarbons and other such reactions like NO<sub>x</sub> conversion. There is a huge literature associated with the modification of zeolite acidity/activity, to which the Kudla et al. reference relates, and it has nothing to do with either electrocatalysis or the claimed invention.

The resulting catalysts taught by the Kudla et al. reference are suitable for processing relatively large quantities of hot engine exhaust streams; this leads well away from the testing of a multiplicity of small samples of our invention. Furthermore, the tungsten oxide disclosed by the Kudla et al. reference is present for modifying the acidity of the catalyst; the Kudla et al. reference does not make use of or lead towards the use of the electrochromic properties of tungsten oxide for indication.

Thus, Wachsman et al., Sullivan et al., Kudla et al., and Nagai individually or collectively with any other reference do not teach or describe Applicants' invention. For the foregoing reasons, Applicants' invention is patentable over the references of record and the rejections under 35 U.S.C. § 103 are therefore respectfully requested to be withdrawn.

### **Conclusion**

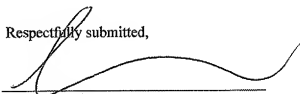
In view of the foregoing amendments and remarks, pending claims 10-19 are allowable. Their favorable reconsideration and allowance is respectfully requested.

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Should the Examiner have any questions or comments as to the form, content or entry of this Amendment, the Examiner is requested to contact the undersigned at the telephone number below. Similarly, if there are any further issues yet to be resolved to advance the prosecution of this application to issue, the Examiner is requested to telephone the undersigned counsel.

No fees are believed to be due associated with this paper. However, if any such additional fees are due, please charge such fees to deposit account No. 50-3355.

Respectfully submitted,



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